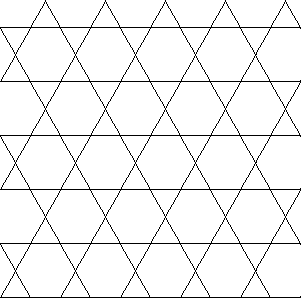
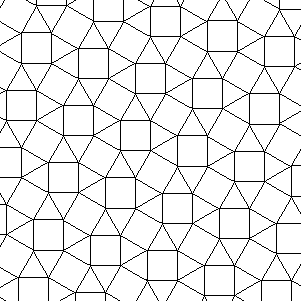
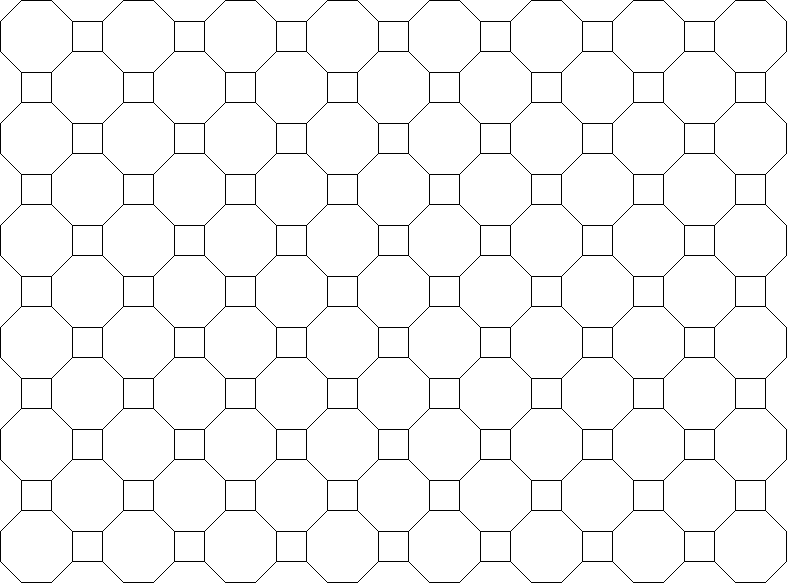
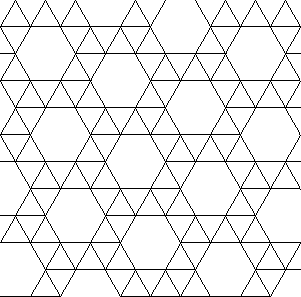
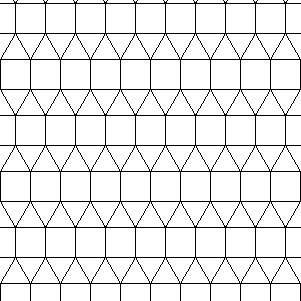
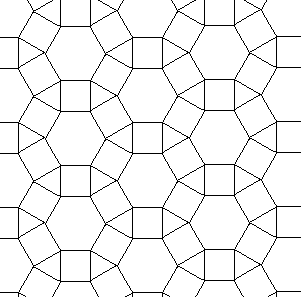
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| Outcomes and Indicators | Outcomes  SGS1.2 Manipulates, sorts, represents, describes and explores various two-dimensional shapes  Indicators   * Identifying and naming different types of lines in pictures and the environments   Working Mathematically   * Visualise, make and describe recently seen shapes |
| Resources | * “Lines” chart * Small pieces of blank paper * Coloured pencils * Glue |
| Aim | * Consolidate student learning about lines * Get students to illustrate examples of different types of lines apparent in the world |
| Activity | * Get class to discuss the lines that were brainstormed yesterday   + *Can we remember the different types of lines we discussed yesterday?*   + List them on the board and get students to identify examples again again/ recall those from yesterday * Divide class into 6 groups, once for each type of line. * Students will be given a small piece of paper with a type of line on it and will be asked to sit with their group in a particular area of the class * In their groups, ask students to discuss the examples of their lines that we have discussed over the two days or any new examples. * Ask each student to decided on a particular example e.g. a cloud, a snail of their line * Distribute pieces of paper to each student and ask them to draw their example on the piece of paper * Show students the chart and explain that their illustrations will be used to illustrate the chart |
| Background Knowledge | Students have discussed lines and brainstormed the different kinds of lines in yesterday’s class. |
| Assessment: | * Students produce a pictorial representation of a specific type of line   + Slanted, Vertical, Horizontal, Spiral, Wavy, Zig Zag   To add to the chart of lines |
| Behaviour Management | * Group that discusses most co-operatively gets 20 house points |
| Outcomes and Indicators | SGS1.2 Manipulates, sorts, represents, describes and explores various two-dimensional shapes  Indicators   * Manipulating, comparing and describing features of 2D shapes including hexagons, rhombuses and trapeziums * Using the terms sides and corners to describe features of 2D shapes * Sorting 2D shapes by a given attribute e.g. number of sides or corners |
| Resources | * Lines “Sheet” * Feely bag with shapes * Paddle pop sticks * Dice * Rods * Geoboards * straws |
| Aim | * Revise known 2D shapes and categorise them using their features |
| Activity | 1. Revise lines from lesson one – complete worksheet on lines    * Ask students to use what they remember from yesterday’s lesson to complete the worksheet    * Give students 15 minutes to complete the worksheet and then return to the floor to discuss the answers as a group 2. Get feely bag with shapes in it and identify a shape, give clues such as “ this shape has x no. of sides” or it has 3 angles etc    1. Draw each shape on the board and label 3. Sorting shapes – using different coloured hoops ask students about different way to sort these 2D shapes    1. Get students to choose criteria for sorting and sort the shapes accordingly 4. Tessellation   *A tessellation is created when a shape is repeated over and over again covering a plane without any gaps or overlaps.*   * 1. Demonstrate how some shapes tessellate and others don’t   2. What makes a shape tessellate ?      1. Important things to remember about tessellations, they need to cover an entire surface with no gaps   3. Why don’t some shapes. E.g. circles tessellate  1. Dice game    1. Students are placed in groups and given a dice, when the dice lands on a number a student in the group must make a known shape out of the no. e.g. if it lands on 3, make a triangle using the paddle pop sticks provided    2. What happens in we lands on 1 or 2?    3. Suggest making a line or skipping a turn?    4. Ask students to record/ draw all the shapes them make    5. Repat the same using rods/ geoboards and straws   Get students to complete activity in 5 groups. |
| Background Knowledge | * Students know different lines and their different orientations * Know that shapes are closed lines |
| Assessment: | * If time permits * Get students to play celebrity head with shapes |
| Behaviour Management |  |

Lesson 2

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| Stage: 1 | Topic: 2D Space |
| Aim: Students will understand that shapes fit together to make new shapes and that shapes can tessellate  Objectives:   * Revise the word and concept of tessellation * Understand that shapes can be made of up other shapes | Outcomes:  **SGS1.2**  Manipulates, sorts, represents, describes and explores various two-dimensional shapes   * joining and separating an arrangement of shapes to form new shapes * making tessellating designs by flipping, sliding and turning a two-dimensional shape |
| Resources:   * 2D shape blocks * Paper * Tessellation picture – soccer ball, table cloth, Escher book * Ruler * Glue | |

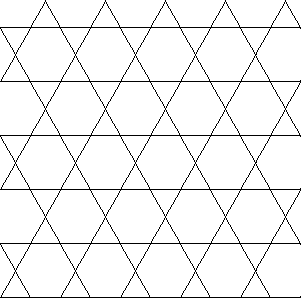
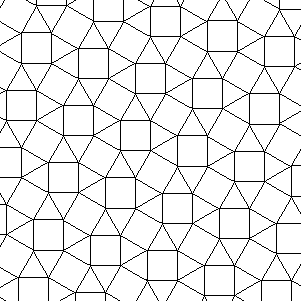
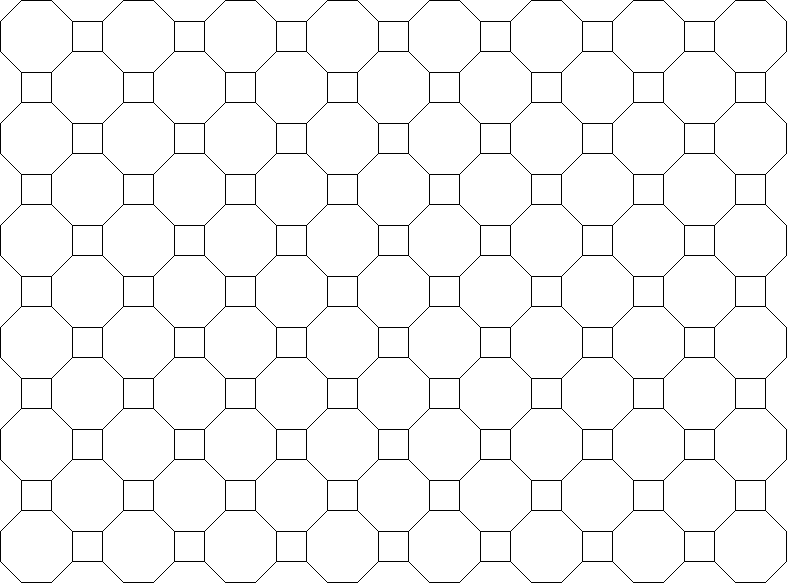
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| Group Structure | Content | Time |
| Whole class | Introduction – Drawing shapes   * Revise measuring with a ruler. * Model drawing a square on the board   + If this side is 5 cm, how much should the other side measure? * Draw a square and ask students to copy * Ask them how they can then make 4 triangles out of the square * Demonstrate * Ask students to cut out 6 triangles and (use the method you have shown with the square) and make other shapes * Ask students to glue new shapes, with labels and labels on sides into maths books. | 15 |
|  | * Draw a large square piece of paper on the board and ask students if they can think of a way to cover the whole piece of paper with a single shape. E.g. triangle * If they can get it, demonstrate, using the principle of 6 triangles = rectangle etc. * Tell them that this means triangles tessellate   Tessellation   * What does the word tessellate mean?   *A tessellation is created when a shape is repeated over and over again covering a plane without any gaps or overlaps?*   * Show some examples e.g. of the same shape, and different shapes. Soccer ball, quilts, table cloths * How can we test if a shape tessellates?, show the example on the board and how we can , move the shape around to make it fit. * Can we investigate? * Give each group a shape to test if it will tessellate? * Pentagon, hexagon, square, rectangle, triangle, circle, octagon,   Create table of shapes that do and no not tessellate.  Ask students to copy into their books. | 25 |
|  | Extension   * If students finish, ask them to choose two shapes and test * Display these to the whole class. |  |

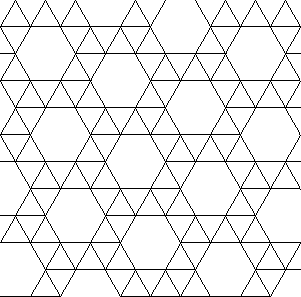
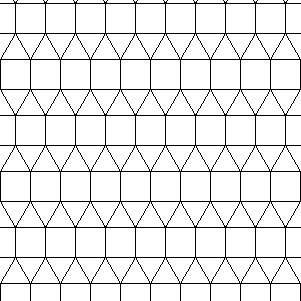
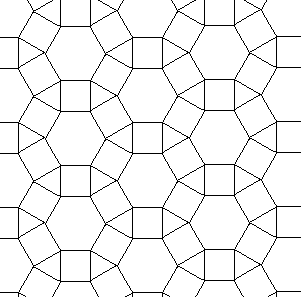


 Lesson 3

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| Stage: 1 | Topic: 2D Space |
| Aim: Students will understand that shapes can tessellate with themselves and with other shapes.  Objectives:   * Revise the word and concept : tessellation * Recognise tessellations in the environment * Use combinations of single and numerous shapes to make tessellating patterns | Outcomes:  **SGS1.2**  Manipulates, sorts, represents, describes and explores various two-dimensional shapes   * making tessellating designs by flipping, sliding and turning a two-dimensional shape * Making tessellating designs with different regular and irregular shapes |
| Resources:   * 2D shape blocks/ patterns blocks * Pictures of tessellations / Books * Isometric dot paper * Pencils | |

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| Group Structure | Content | Time |
| Whole class | * Sit on chair and discuss tessellations in the environment   + Where have students seen tessellations before?   + Do they always have just one shape?   Ask students to form groups for 4 where they sit and distribute the pictures discussed   * Ask each group what shapes are in the tessellating pattern? * Where is this patterns found? | 5 |
| Whole class in a circle | * Pick a shape and ask students to think about how that shape would tessellated * Use words, flip, rotate, slide * Can we use another shape? | 10 mins |
| Groups | * Distribute isometric grid paper and show students how to use it to draw different shapes * Get students to use pattern blocks, the same and different to make tessellating pattern * Ask students to draw a tessellating pattern. | 15 |



 Lesson 4

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| Stage: 1 | Topic: 2D Space |
| Aim: Ex  Objectives:  Understand the phrase “symmetry”  Find shapes and items that have symmetry  Find the line of symmetry in shapes | Outcomes:  **SGS1.2**  Manipulates, sorts, represents, describes and explores various two-dimensional shapes   * identifying a line of symmetry on appropriate two dimensional   shapes |
| Resources:   * Paper * Shapes * Geoboards * Elastics * Scrap paper * Paddlepopsticks * Pictures/ Photos * Glue | |

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| Group Structure | Content | Time |
|  | Introduction  Semantic word map – what does symmetry mean?   * Words that describe symmetry * Things that have symmetry * Things that remind you of symmetry * Pictures….what has symmetry?   Web Def  “The property of an object when the characteristics (size, shape and relative position of parts) are the same on either side of a dividing line or about a center.”  “ A shape is symmetrical if both halves are exactly the same”, or one half can be folded on the other exactly.  How do we investigate if a shape has symmetry?   * Draw a line (line of symmetry – introduce new vocab)   Demonstrate with square  Ask : “ Can we fold some of this shape in different ways?  Can a shape have more than 1 line of symmetry.  Can use pictures for this. | 5 mins |
|  | Symmetrical bodies   * Make symmetrical body shapes * Make a shape with the body and ask students how they can make it symmetrical.   Ask students to make symmetrical shapes with a partner | 5 |
|  | Go through activities with the class   * Group 1 – Write their names on a piece of paper and find out which letters have symmetry and which don’t. Demonstrate using Mrs Ginige * Dice Game – with paddle pop sticks – elastic can be a line of symmetry * Dice Game - with geoboards – paddlepop stick can be symmetry * Get a piece of paper and draw a line down the middle. Swap with your partner, asks your partner to make this shape symmetrical. | 30 |
|  | Hand Symmetry   * Side by Side * Have students draw their hands side by side * Cut out both hands and rearrange they hands along a new line of symmetry. | 10 |

Lesson 5

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| Stage: 1 | Topic: 2D Space |
| Aim: Introduce students to the concept of corners and angles  Objectives:   * Understand the size of angles in relation to right angle * Make angle using different materials * Find angles of different sizes in the environment | Outcomes:  **SGS1.2**  Manipulates, sorts, represents, describes and explores various two-dimensional shapes   * identifying the arms and vertex of the angle in a corner comparing angles by placing one angle on top of another |
| Resources:   * Cardboard squares * Pattern blocks * Pipecleaners | |

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| Group Structure | Content | Time |
| Whole class | Introduction   * Ask students to stand in the corners of the room? How do we find a corner? What is a another word for a corner   Angle Hunt….   * + Ask students to find corners on other things e.g. doors, furniture etc. | 5mins |
| Pairs  Whole class | **Corners as Angles**  Students use one corner of a large cardboard square or rectangle to find other corners of the same size eg the corner of the classroom, the corner of a book.  Draw this on the board as right angles and label.  They then find angles that are smaller or larger than the corner of the square. Demonstrate how to find these shapes by superimposing. Or using their block to find shapes that are smaller and larger.  Create a table to capture this information   |  |  |  | | --- | --- | --- | | **Smaller than a right angle** | **Right Angle** | **Bigger than a right angle** | |  | **Door**  **Table** |  |   **Part B**  In pairs, students are given a selection of regular shapes including squares, rectangles, and triangles to compare the angles at the corners by superimposing one over the other. They could sort the shapes according to the size of the angles eg the same as a square, larger than a square, smaller than a square. Students then discuss and record results.  **Class returns back to the floor**  Possible questions include:  ❚ how can you describe the angles at the corners of each shape?  ❚ are the angles at the corners of each shape the same or different?  ❚ what happens when you place an angle from a square on top of an angle at the corner of a hexagon?  ❚ can you describe the difference? | 20 min |
|  | **Creating Angles**  Students construct a variety of angles using pipe cleaners.  Students are asked to make:  ❚ an angle and then make one that is smaller and one that is larger  ❚ an angle that looks like the corner of a square  ❚ angles of the same size but with arms of various lengths  ❚ an angle that looks like one made by another student.  Ask student to copy these into their books. |  |

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| Stage: 1 | Topic: 2D Space |
| Aim: Recognise that shapes can move from one place to another in three specific ways “ flip”, slide and turn  Objectives:   * Understand the words, flip, slide and rotate * Flip, slide and turn simple 2D shapes. | Outcomes:  SGS1.2  Manipulates, sorts, represents, describes and explores various  two-dimensional shapes   * making tessellating designs by flipping, sliding and turning   a two-dimensional shape   * describe the movement of a shape as a single flip, slide or   turn (*Communicating*)   * recognise that the name of a shape doesn’t change by   changing its orientation in space (*Reflecting*) |
| Resources:  Arrows  Blue tack  Geoboards  Pattern blocks  Shapes  Maths books.  Worksheet 2D Space 8 | |

Lesson 6

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| Group Structure | Content | Time |
| Whole class | Arrow Transformations  What that really means is that a shape is moving from one place to another.  Ask students to close their eyes, place 1 arrow on the board (trace first) and transform the shape e.g. flip the shape. Ask students to open their eyes and ask what has happened to the shape.   * What direction is it facing? * What direction was it facing before? * What has happened to the shape?   A FLIP takes place when a shape is flipped across a line and faces the opposite direction. Because the shape ends up facing the opposite direction, it appears to be reflected, as in a mirror.  Ask the students to close eyes again and do the same for slide and turn.    A SLIDE takes place when a shape moves in one direction from one place to another. When you watch the shape move, it appears to be sliding. Often you will see an arrow underneath the shape to show what direction it is moving in  Repeat the process with a triangle and a square. Is the shape still a triangle or a square? Highlight that though the orientation of the shape has changed, the name remains the same. | 10 |
| Whole group | Demonstrate using geoboards.   1. How would I slide the square on my geoboard 2. How would I turn on the geoboard.   Ask students to demonstrate.  Slide, flip turn with hands.  Place hands in front and ask students to demonstrate how we can slide, flip and turn hands. Place simon says with flip, slide and turn. If students get it, try and combine movement, e.g. flip and slide. Etc. | 10 |
| Individual/ Pairs. | Flip, Slide and Turn/ Bingo  Explain the game, each student will get a pattern block and they will trace the same first. Then the teacher will call out one of the three “transformation” words and students will then perform that action on their shape.   * Ask students to open to a new page in their maths books. * Each student is given a pattern block and asked to trace * Colour each different movement in a different colour.   Demonstrate on the board. Once students have used a regular ashape, ask them to use another possibly irregular shape e.g the first letter of their name, and create a pattern without using words. Instead ask them to tell you what has happened to their shapes.  Get students to make their own patterns using their own shapes, e.g. letters in their names. Ask them to describe how they made the shape.  Ask  ❚ is your pattern different when you flip, slide or turn?  ❚ which patterns are symmetrical? Why?  ❚ how did you make your pattern? | 10 |
|  | Worksheet. 2D Space 8.  Website  <http://www.joelson.addr.com/slideflipturnSWF.htm> |  |

Lesson 7

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| Stage: 1 | Topic: 2D Space |
| Aim: Recognise that shapes can move from one place to another in three specific ways “ flip”, slide and turn  Objectives:   * Understand the words, flip, slide and rotate * Flip, slide and turn simple 2D shapes. | Outcomes:  SGS1.2  Manipulates, sorts, represents, describes and explores various  two-dimensional shapes   * making tessellating designs by flipping, sliding and turning   a two-dimensional shape   * describe the movement of a shape as a single flip, slide or   turn (*Communicating*)   * recognise that the name of a shape doesn’t change by   changing its orientation in space (*Reflecting*) |
| Resources: | |

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| Group Structure | Content | Time |
| Whole class | Revise flip, slide and turn.   * What is the difference between a slide and a turn? * What is the different between a turn and a flip? * What about a flip and a slide?   Refer back to the previous worksheet?  How did everyone differentiate when it came to the money, the flip sometimes looked like a turn? | 10 |
| Pairs | A game for pairs   * • Each player chooses a Score Grid. * • Each player chooses a Pattern block shape and traces around it. * • While Player 2 turns away, Player 1 fl ips, slides or turns his or her shape and traces again. * • Player 2 now tries to identify the movement of the traced shape. If he or she identifi es the movement * correctly, the player can put a centicube on the matching description on his or her Score Grid. * • The game is over when a player has six centicubes on his or her Score Grid. * Extensions * Ask student to draw and cut out there own irregular shapes and play the same game. | 10 |